

*Hyles dahlii* Geyer (Lep.: Sphingidae) — A Local Species of Mediterranean Hawkmoth found in Sardinia (June 1976)

By NIGEL F. GOSSLING \*

Whilst spending a family holiday at a hotel situated on the north coast of Sardinia, which had been built close to the sea about 4 kms to the east of Castelsardo, I encountered by chance ova and a number of larvae at different stages of growth of this species of hawkmoth on terminal shoots of sea spurge (*Euphorbia paralias* L.). I did not in fact discover this species until the afternoon of the last full day of my holiday, when I was strolling back to the hotel through an area of rough ground covered with patches of extended sea spurge growth lying close to the rocky foreshore. I first noticed a tiny black larva with a distinctive slim horn on its anal segment, which was lying motionless along an upper leaf, and upon examining this larva, I immediately noticed two opaque green, oval shaped ova attached to the upper side of an adjoining leaf. Thereafter I spent a little time examining the upper foilage of other sea spurge plants within a radius of ten metres or so and soon found further larvae in their first, second and third instars browsing amongst terminal leaves and flower bracts within large clumps of sea spurge. I also carried out a search amongst larger plants, which were growing close to the rocks and which had reached the height of a metre or so, and found two full grown larvae in their fifth instar feeding together near the top of a plant, having completely devoured most of the upper foliage. I was surprised to see such full grown larvae entirely exposed to the sun without the display of any signs of distress. Owing to the apparent similarity in the markings and general colouration of the young larvae found with those of the Spurge Hawk (*H. euphorbiae* L.) I was not immediately aware of the fact that I had stumbled upon a different species. I did notice, however, that full grown larvae did display markings and colouration which were distinctly different from those displayed by full grown Spurge Hawk larvae.

Only first instar larve remained black in general colour. Thereafter during the second, third and fourth instar stages the general colouration on the upper dorsal and ventral areas of each segment of the body was black or deep green with many minute white speckled spots all over the upper area of the segments. Within the upper ventral areas of each segment there were, however, two large irregular creamy-white spots lying within a black velvet patch. There was also a distinctive orange dorsal stripe along the full length of the body and a yellowish ventral stripe containing deepened orange patches in each segment on each side of the body. The underside area of each segment appeared to be universally greenish with small irregular white spots of similar character as those displayed on the upper parts of the body. The pro-legs were universally orange and the fore-legs were coral pink. The horn on the

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anal segment was also orange for approximately two-thirds of its length and the remainder was black. As a striking contrast the head and a cervical shield on the upper side of the first segment below the head were deep coral pink. In spite of this appearance, the larvae appeared to blend well with their habitat and only the pink head and cervical shield as well as the orange dorsal stripe appeared to be at odds with the general colouration displayed. Full grown larvae attained the length of approximately 10 cms with a body thickness of approximately 2 cms and their marking and colouration were generally the same as hitherto described, although the area of the belly was universally pale cream with a slight translucent greenish shade present with small irregular white spots as earlier mentioned.

Having first taken a series of photographs of ova and larvae at various stages of growth *in situ*, I duly collected a few young larvae and a further quantity were subsequently collected on the following day before our departure from the hotel. Upon return a dozen or so larvae were offered a supply of sea spurge, which I had brought back home with me, and such plant food was devoured in less than two days! Thereafter the larvae were fed with wood spurge (*E. amygdaloides* L.) and this was likewise devoured within a few days. As my local supply of wood spurge had by now been exhausted, I was obliged to hastily look around for an alternative food-plant to offer and I finally decided to offer the larvae which were by this time in third and fourth instars, rose bay willowherb (*Epilobium angustifolium* L.) and to my relief this substitute was accepted by most larvae, although three third instar larvae did reject this substitute and subsequently were found dead due to starvation. The remainder, however, completed their larval growth and appeared to be healthy and normal in size.

Because the summer weather was particularly warm after my return on 27th June, all surviving larvae reached their final instar within ten to fourteen days after arrival, and thereafter pupation occurred rapidly and by the first week of August all surviving larvae had pupated safely. The larvae made no attempt to burrow into damp peat which was provided for that purpose, and were content to construct cocoons on the surface with the aid of a few willowherb leaves as additional protection. The pupae appeared to be indistinguishable in character from those of the Spurge Hawk.

The imagines began to emerge on 17th August and continued to do so intermittently until the third week in September. The sexes appeared to be evenly matched, although the balance was slightly tipped in favour of the female sex. It was not until emergence occurred that I realised that this species was not *H. euphorbiae* and thanks to the kind assistance of Mr. Robert Goodden towards identification and my subsequent research at the Department of Entomology, British Museum (Natural History), I was able to have the identification of this species confirmed with certainty.

The noteworthy features of the imagines are perhaps the distinctive olive and grey markings on the forewings, which are in fact both variable in density and colour. There are four somewhat indistinct olive patches lying towards the costal region of the forewings with a more distinct olive wedge-shaped patch stretching from the apex to the dorsum. Within the discal area lying between the major olive patches as well as the submarginal area of the forewings the colouration was universally grey. A number of imagines also displayed intermittent black wavy lines within the grey discoidal region of the forewings. Furthermore, many of the main forewing veins were dusted with off-white scales, which gave the insect the superficial appearance of the Striped Hawkmoth (*H. lineata livornica* Esp.). The hindwings displayed a beautiful deep rose or madder pink central area with a white basal patch. The rest of the basal area was black and there was also a submarginal black band of irregular width present on the hindwings with an adjoining greyish pink outer marginal band. The head and thorax were clothed with olive hairs with one distinctive feature, which is not usually apparent amongst *H. euphorbiae* imagines; the shoulder lappets on each side of the thorax were bordered with white hairs which provided the insect with an attractive contrast in colour. The antennae were universally filiform in structure and were generally whitish along the upper sides with a slightly greyish underside area. The legs were also clothed with whitish hairs with the slightest touch of olive. The abdomen was also generally clothed with olive hairs on the upper dorsal region with three distinctive patches of black hairs on the upper ventral surfaces of the first three abdominal segments. The last pair of black patches furthest away from the thorax often were preceded by a smaller area of white hairs. The under sides of both the fore and hind wings were generally pinkish grey with fine mottled markings with a suffusion of blackish androconial hairlike scales within the discoidal region of the forewing undersides. The underside of the abdomen and thorax was also pinkish grey. In other general respects the size and shape of the fore and hind wings were similar to those displayed by *H. euphorbiae*. The freshly emerged imago is certainly an insect of much beauty.

Although the summer weather remained dry and hot until the end of September my attempts at achieving successful pairings failed due largely to my inability to induce the imagines to feed with the aid of wildflowers or artificial methods. Even the presence of a potted *Euphorbia characias* plant as an added stimulation placed inside the wooden shed in which the imagines were kept, did not produce any confirmed results. Two infertile ova were subsequently discovered as having been laid at the base of one shoot of the potted plant.

Resulting from my research and enquiries it would appear that this attractive species is probably confined to the Islands of Corsica, Sardina and Sicily and may prove in fact to be not

HYLES DAHLII GEYER (LEP.: SPHINGIDAE — SARDINIA 299  
uncommon along certain coastal regions of these islands  
wherever sea spurge is abundant. There are a few late nine-  
teenth century records in existence of the species having been  
found in Majorca and Elba and it's existing presence on these  
two islands would no doubt require confirmation. It is also  
quite likely that this species may have established itself along  
restricted coastal areas of Eastern Spain and Western Italy,  
although this would require positive confirmation. I do not  
personally know whether or not this species has been recorded  
elsewhere in the Mediterranean coastal regions and it would  
be interesting to hear of any other confirmed localities. In any  
event I can but hope that some readers of this article will be  
as fortunate as I in finding this species elsewhere and perhaps  
be lucky enough to breed such handsome insects. Clearly more  
up-to-date information regarding the general distribution and  
life-style of this species, which is not well known or recorded  
to date, is required.

As a postscript to this article I should perhaps mention  
that one female imago failed to emerge with the others and  
did not do so for two years and in fact emerged as a perfectly  
healthy insect on 27th August 1978. I suspect, however, that  
such an occurrence in the wild is somewhat unusual for this  
species, as it appeared to be multi-brooded and is likely to  
produce at least two to three broods each year and would not  
therefore, spend more than two or three months in the winter  
period in the pupal stage in view of the warm temperature  
climate.

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L. G. O. WOODHOUSE'S METHOD OF SCALE TRANSFER. —  
The method of lepidopterous scale transfer recalled by D. G.  
Sevastopulo ("Decorative Art in Butterflies", *Ent. Rec.* **91**:  
133) as perhaps being published in a book on the butterflies of  
Ceylon is L. G. O. Woodhouse's "wax-cum-gum" method, one  
of the two described in his *The Butterfly Fauna of Ceylon*,  
cited in my note on the subject in the same issue ("Scale  
Transfers of Lepidoptera", **91**: 133). Actually this method was  
first announced by Woodhouse in 1935 as "Notes on a Special  
Method of Making Butterfly Pictures". *Proc. Roy. Ent. Soc.*  
*London* **10**: 5-9, and the later account was only slightly  
modified: Woodhouse used coloured illustrations of his "wax-  
cum-gum" transfers for most of the plates of his book. How-  
ever, the query in my note was meant to elicit information or  
recollections about "another" method used for certain un-  
published transfers of moths in my possession which "wax-  
cum-gum" seems to have been surpassed. I am now convinced,  
after 'dissecting' a tiny portion clipped from one of the *Attacus*  
*atlas* transfers, that these are indeed of the same process, with  
the "great improvements" which Woodhouse explained as  
possible by experimenting with paper colouring. These trans-  
fers are much superior to the appearance of the plates in his  
book, but of course much of the brilliance of the actual trans-  
fers must have been lost when they were subjected to the  
illustration process. — R. S. WILKINSON, 228 Ninth Street,  
N.E., Washington, D.C. 20002, U.S.A.